REMARKS/ARGUMENTS

Applicants have received and carefully reviewed the Office Action of the Examiner mailed March 10, 2004. Claim 13 has been amended and new claims 21 and 22 have been added. Support for the amendment and new claims can be found in the specification and claims as originally filed. No new matter has been added. Claims 1-22 are pending. Reconsideration and reexamination are respectfully requested.

Rejection under 35 U.S.C. § 102(b)

Claims 1, 2, and 15 are rejected as being clearly anticipated by Parker et al. (US 4,931,948). Applicants traverse the rejection. The damper of claims 1 and 2 and the system of claim 15 include a stepper motor directly coupled to a damper vane. The specification defines "directly coupled" as meaning that "no intermediate gears are provided between a shaft...of the stepper motor 220 and the vane 230 so that the vane 230 and the shaft 225 rotate at substantially the same rate of rotation." See page 6, lines 21-24. The specification also defines "directly coupled" as including "coupling techniques where one or more intermediate pieces are used to fix the shaft 225 relative to the damper vane 230." See page 6, lines 24-27. This is shown in figure 12A, with the first end 360a of the motor drive shaft 360 being directly coupled to a damper vane 330. The specification discloses some advantages of this direct coupling including reducing noise and wear typically associated with the use of a gear train, reducing power consumption and increasing control, and allowing for opening and closing the damper vane at higher speeds. See page 6, lines 9-16. Applicants submit that Parker et al. fail to teach or suggest a damper vane directly coupled to a stepper motor, as claimed and as defined in the instant specification.

The Examiner did not refer to any specific part of the Parker et al. patent as teaching the elements of the claims. Applicants are assuming that FIG. 2 and/or FIG. 3 are being relied on, as there is no discussion in the text of Parker et al. regarding the connection between the damper and motor. Applicants request clarification if this assumption is incorrect. Parker et al. describes FIG. 2 as a pictorial diagram and FIG. 3 as a simplified schematic diagram. See column 10, lines 40-42. Applicants have carefully reviewed the Parker et al. patent and the only discussion of the connection between the damper and motor appears to be that the stepper motor "positions

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damper 39", and that the dampers are controlled "by way of a precision stepper motor 19 and 36-38." See column 11, lines 39-40, and column 12, lines 36-37, respectively. Parker et al. does not appear to provide any teaching or suggestion of how the damper and motor are actually connected. Applicant submits that the Examiner has improperly inferred actual structure from a simplified schematic and/or pictorial diagram that merely shows a motor somehow connected to a damper. In a schematic or pictorial diagram, lines and arrows are used to show that parts of a system are connected in some way, but do not show any particular structure of the connection. Applicants submit that when only schematic or pictorial diagrams are provided, one must look to the description of those diagrams for any teaching of actual structure. Parker et al., however, do not provide any actual structure of the connection between the damper and motor, but merely indicate that the motor "positions" or "controls" the damper.

FIG. 3 of Parker et al. shows a motor 19 attached in some manner to damper blade 19b. The damper blade 19b appears to pivot back and forth on the end of a shaft connected to the motor 19. In this configuration, any rotational motion from the motor would have to be altered by a gear or other means to change that rotational motion into a pivoting motion to move the damper blade 19b, because the directions of motion are different. In this configuration, the motor is not directly coupled to the damper vane, as is recited in independent claims 1 and 15, and as defined by the instant specification. Parker et al. thus do not teach each and every limitation of claims 1, 2, and 15. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 13 is rejected as being clearly anticipated by Danby (US 5,006,772). Applicants traverse the rejection. Claim 13, as amended, recites a damper including a stepper motor directly coupled to a damper to move the damper between first and second positions. Danby teaches a stepper motor used to move a valve seat between two extreme positions. See column 9, lines 46-51. Danby does not teach the stepper motor directly coupled to a damper, as is now recited in claim 13. Danby fails to teach each and every limitation of claim 13. Reconsideration and withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. § 103

Claims 3, 4, 9-12, and 17 are rejected as being unpatentable over Parker et al. The Examiner asserts that Parker et al. teach every element of the claims except for the stepper motor

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having at least 24 or 48 steps per revolution, and asserts that it would have been obvious for the stepper motor to have at least 24 or 48 steps per revolution because it is well known that a high resolution stepper motor, for example one having 12,800 steps per revolution will make it possible to precisely control the movement of the valve coupler; thus it is a matter of obvious design choice based on discovering the optimum or workable ranges involving only routine skill in the art. Applicants respectfully disagree.

The Examiner states that well known high resolution stepper motors having 12,800 steps per revolution make it possible to precisely control the movement of a valve coupler. This appears to provide some advantage. In view of this asserted prior art, the Examiner's assertion that using a non-high resolution stepper motor with 24 or 48 steps per revolution is a matter of obvious design choice appears to be contrary to what is well known and advantageous in the art. Applicants respectfully request the Examiner provide a reference disclosing the asserted well known teachings.

Claims 5-7 are rejected as being unpatentable over Parker et al. in view of McCabe (US 2001/0055947 A1). The Examiner asserts that Parker et al. disclose the claimed invention except for a shaft extending through a hole in the frame directly to the vane and a hub. McCabe is cited for teaching a damper with a shaft extending through the frame directly to the vane and a hub. Parker et al. fail to teach the basic features of the claims, as stated above. McCabe does not provide what Parker et al. lacks.

McCabe discloses a damper system in which a motor 28 rotates lead screw 38 on which nut 40 travels, causing actuator shaft 30 to rotate. The actuator shaft 30 is connected to linkage 32, which in turn is coupled to damper vanes 22. See FIG. 1 and FIG. 3 and paragraphs 61-63. Thus, McCabe fails to teach a stepper motor directly coupled to a damper vane. Additionally, McCabe discloses the actuator shaft 30 as extending through the frame 36, while the motor shaft 38 remains outside the frame. See FIG. 1. Thus, neither Parker et al. nor McCabe, alone or in combination, teach the limitations of claims 5-7. Withdrawal of the rejection is respectfully requested.

Allowable Claims

Claims 14 and 18-20 are indicated as allowable, and claims 8 and 16 are objected to as being dependent upon a rejected base claim. Reconsideration and reexamination are respectfully

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requested. It is submitted that, in light of the above remarks, all pending claims 1-22 are now in condition for allowance. If a telephone interview would be of assistance, please contact the undersigned attorney at 612-677-9050.

Respectfully Submitted,

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By their attorney:

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